Boxwood Blight

Enhanced First Detector Training

Boxwood Blight

Presented by

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Boxwood blight

- Potential impact
- Pathways
- Identification & pathogen biology
- Hosts
- Signs & symptoms
- What to do if you suspect you find it

Boxwood blight: new to the U.S. in 2011, new to the world since about 1994

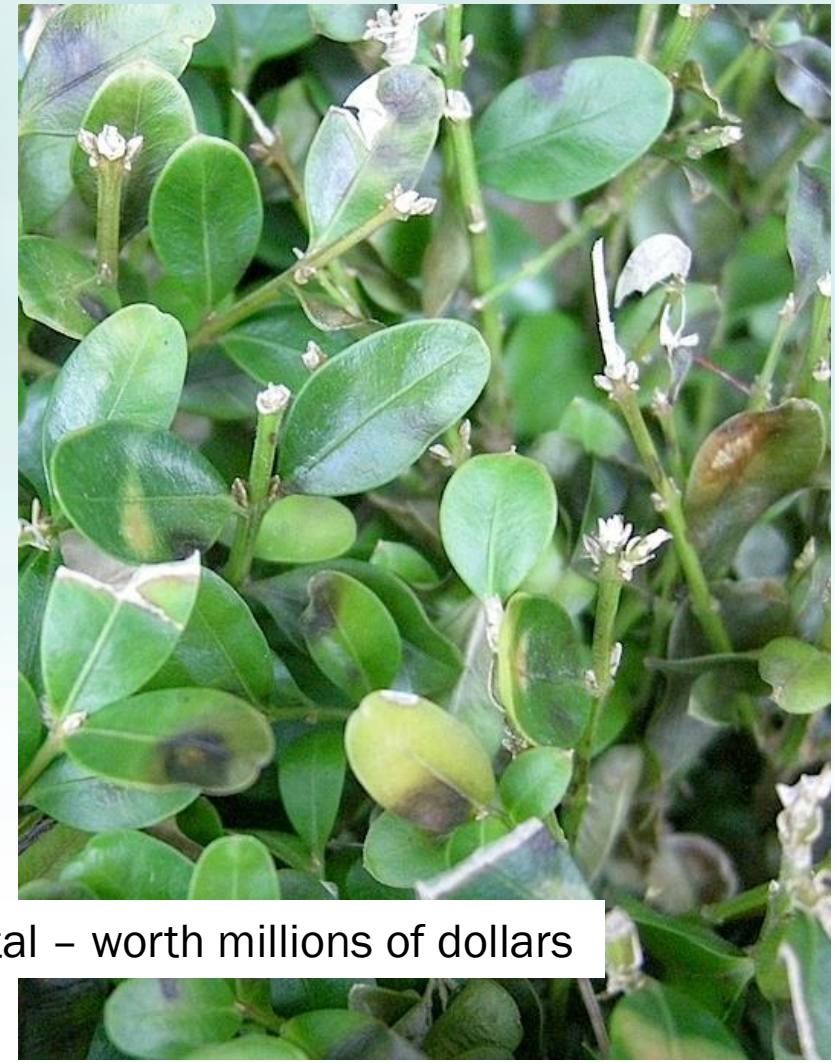
Potential impact

English boxwood and American boxwood are the most susceptible

Boxwood are hugely popular, for reasons of tradition & practicality: deer don't feed on them

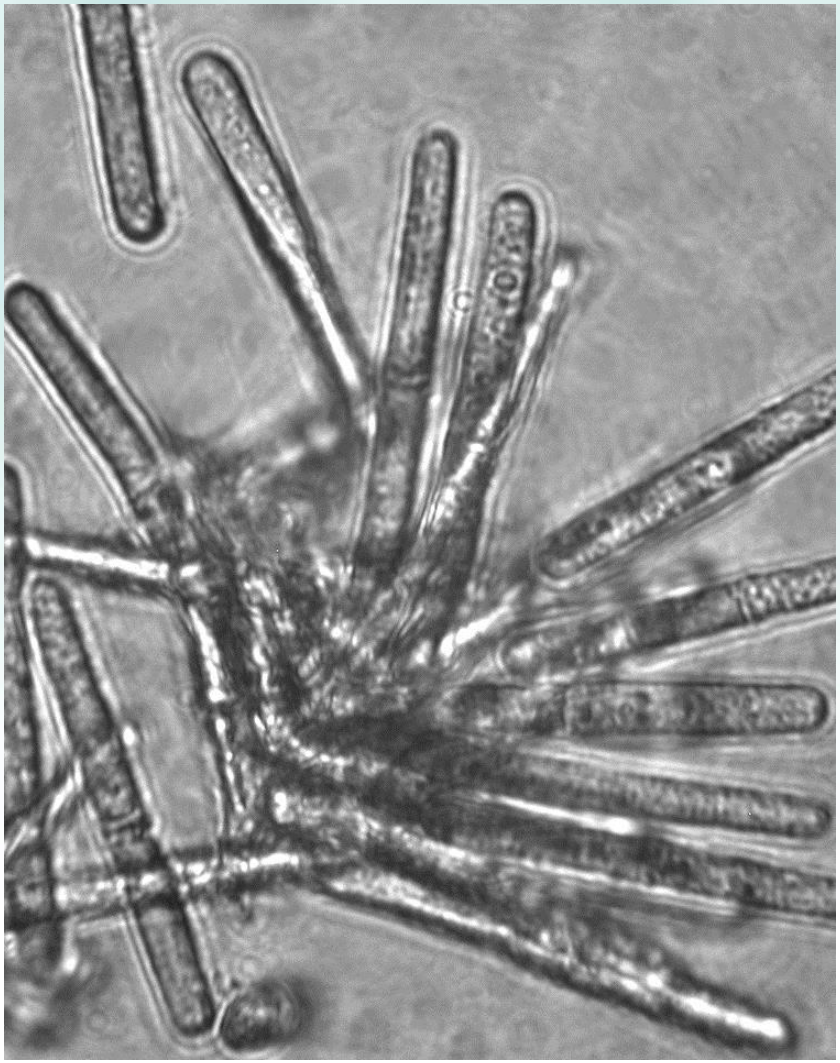
photo:

Potential impact



Loss of a beloved ornamental – worth millions of dollars

Pathogen biology



Calonectria pseudonaviculata

AKA

Cylindrocladium buxicola

OR

Cylindrocladium pseudonaviculatum

The large, sticky spores of this fungus would not spread far without our help (handling and moving plants). But microsclerotia linger in soil and may perpetuate the disease in the landscape.

Pathogen transmission

- Movement of boxwood themselves
- On shears?
- On clothing?
- On animals? insects?
- On lawnmowers?

- Short distances by rain splash or irrigation

Pathogen transmission

Cultivars with less susceptibility (e.g. Korean hybrids including 'Winter Gem', shown here) can become Trojan Horses, introducing the pathogen to valuable old specimens.

In the U.S., plantings made 2011 and after are the most likely to show the new disease

Susceptible hosts

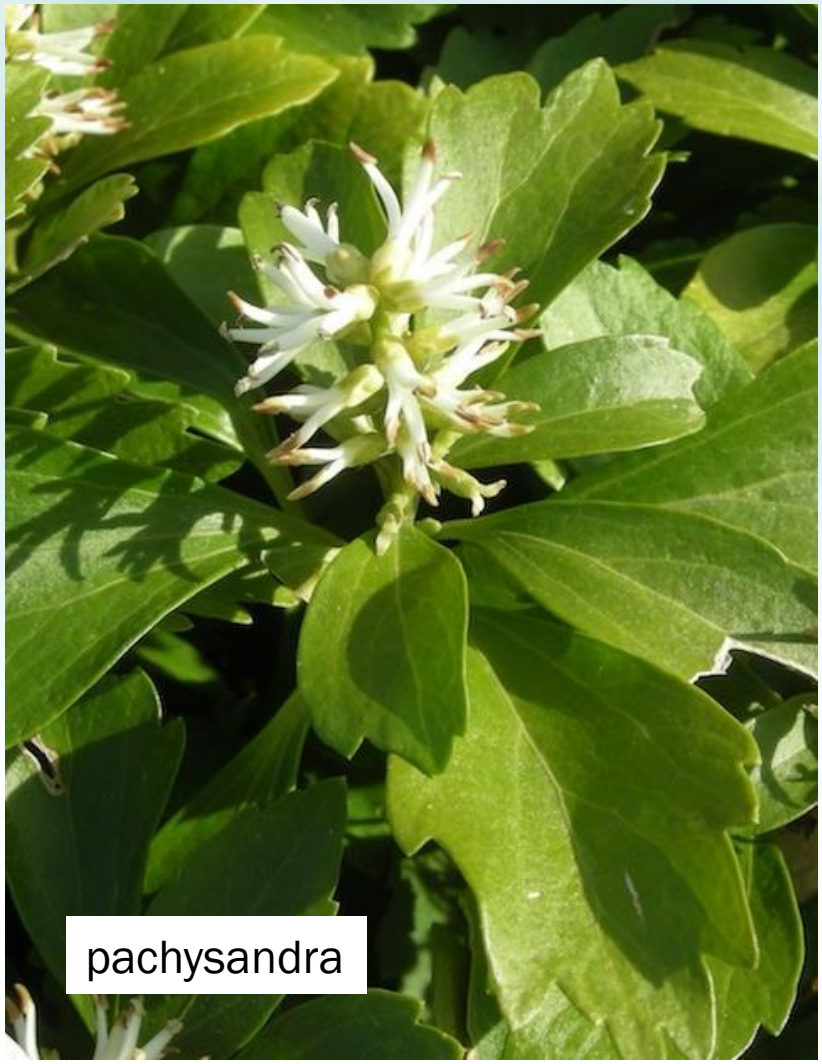
- Common boxwood
  Buxus sempervirens
- English boxwood
  B. s. 'Suffruticosa'
- Korean boxwood
  B. sinica var. *insularis*
- Japanese boxwood
  B. microphylla var. *japonica*
- Other species

- Japanese spurge
  Pachysandra terminalis
- Allegheny spurge* (native)
  P. procumbens
- Sweet box*
  Sarcococca sp.
  (*S. hookeriana*, etc)

**Experimental hosts, not yet seen infected in any landscape*

Susceptible hosts


sarcococca


pachysandra

Symptoms – leaf spots

Photos:

Leaf spots are:

- Small
- Round
- Either dark brown or black
- Able to blight entire leaf if weather remains cloudy and wet for days

Affected leaves usually do NOT turn tan and cling onto the plant: they drop.

Symptoms - leaf drop

Symptoms – black stem cankers

Symptoms of new boxwood blight

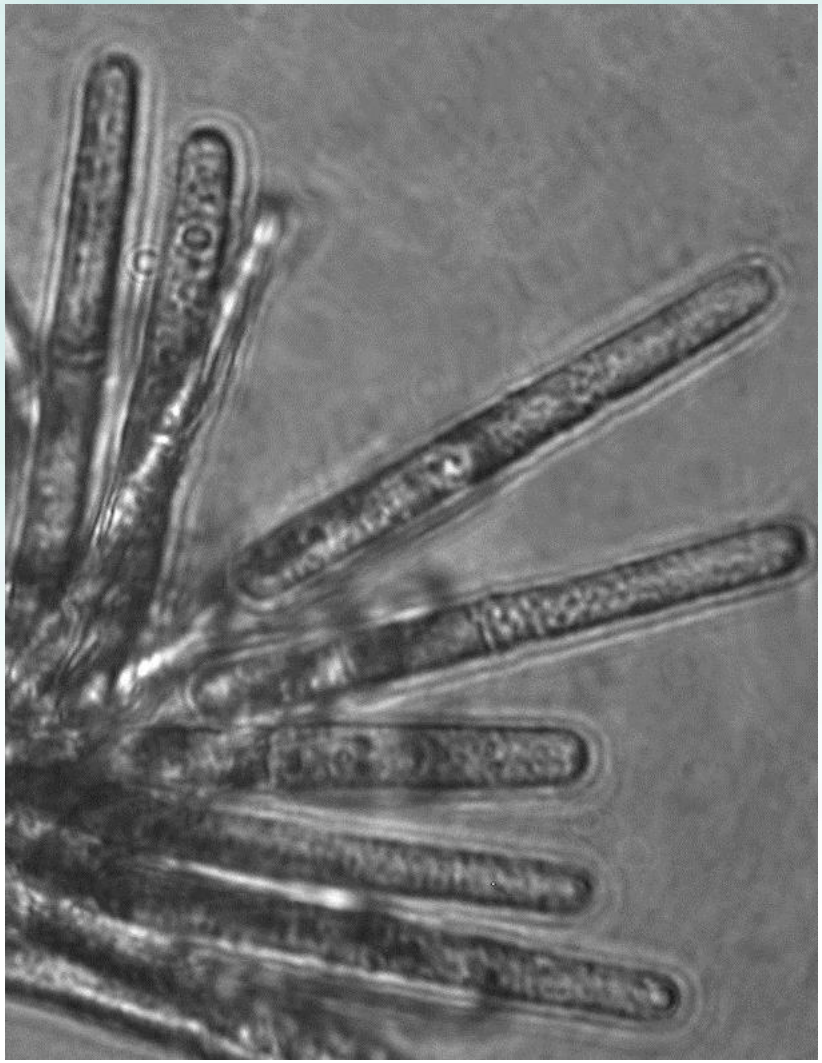
Photos:

Identification

Identification of spore structures in the laboratory is done to confirm a diagnosis of boxwood blight. At low magnification, the sporulation closely resembles young *Volutella buxi* or *Fusarium* sp. Only by observing the two-celled spores with their parallel sides are you sure of the identification.

Sporulation on a twig

Identification: spore clump and spores of *Calonectria pseudonaviculata*



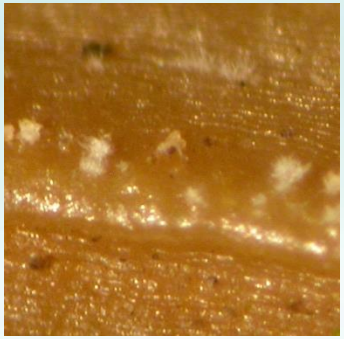
Look-alikes

Other pathogens: *Volutella buxi*

Volutella blight

Look-alikes

Other pathogens: *Fusarium* sp.



Fusarium sp. forms white clumps of spore structures on dead leaves or shoots. Spores are easily distinguished with a microscope at high power from those of *Calonectria*.

Photos:

Fusarium blight

Look-alikes

Other pathogens: *Macrophoma*

Macrophoma leaf spot

The fungus *Macrophoma candollei* is associated with leaf spots and shoot lesions that have a black margin, and thus may be confused with boxwood blight—but the pycnidia (spore cases) of the *Macrophoma* are very distinctive.

Identification – tan leaves that cling to the plant after death are NOT a symptom of the new boxwood blight

Prevent introduction

- Avoid bringing in boxwood at bargain prices: use only reliable sources of plant material
- Inspect plants at the garden center for black leaf spots, black cankers or leaf drop before purchase
- Keep your own pruning tools for use on your property
- Do not bring in mulch that might contain diseased boxwood material from other gardens

Prevent introduction

- Guard valuable historical boxwood or existing extensive collections of boxwood — don't endanger their health by bringing in boxwood that might introduce this new disease
- Consider propagating on premises or rearranging existing plants to fill gaps in hedges
- Consider using less susceptible boxwood types and planting in full sun when starting new boxwood gardens

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Online Resources

Cornell University Cooperative Extension of Suffolk Co. Fact Sheet:

ccesuffolk.org/assets/Floriculture/Boxwood-Blight/Boxwood-Blight-Fact-Sheet.pdf

FAQs: ccesuffolk.org/assets/galleries/Agriculture/Commercial-Nursery-and-Landscape-Management/Publications/Boxwood-Blight-w.pdf

Boxwood Blight Information Page of the Connecticut Agricultural Experiment Station:

www.ct.gov/caes/cwp/view.asp?a=3756&q=500388

AmericanHort Knowledge Center:

americanhort.theknowledgecenter.com/OnDemand/index.cfm?view=category&colid=142&cid=324

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Henricot, B. and Culmam, A. 2002. *Cylindrocladium buxicola*, a new species affecting *Buxus* spp. and its phylogenetic status. Mycologia 94:980-997.

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LaMondia, J., Li, D. W., Marra, R. E. and Douglas, S. M. 2012. First report of *Cylindrocladium pseudonaviculatum* causing leaf spots on *Pachysandra terminalis*. Plant Dis. 96:1069.

Collaborating Agencies

U.S. Department of Agriculture Animal and Plant Heath Inspection Service (USDA-APHIS)

Cooperative Agricultural Pest Survey Program (CAPS)

New York State Department of Agriculture and Markets (NYSDAM)

National Plant Diagnostic Network (NPDN)

Sentinel Plant Network (SPN)

Protect U.S.

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